

A SECTIONAL BIRD CENSUS.

**Taken at Berwyn, Chester County, Pennsylvania,
During the Seasons of 1899, 1900 and 1901.**

With a better understanding of geographical distribution it becomes desirable, in local lists at least, that a more accurate estimate of the bird population should be employed than the usual expression of indefinite terms. The time-honored phrases, however admirably graduated, often utterly fail to give a clear idea of the numerical status of a species, and are useless for comparative purposes generally. On the other hand a bird census of a not too restricted area accomplishes at least two desirable objects: It forms a reasonably accurate basis for comparison with similar tracts, or future enumerations over the same ground reveals the rate of increase or decrease; and it enables an approximation of the total bird life to be made of a larger section.

The writer does not plead any special qualifications for the work other than that the locality has been most familiar ground for the past twenty years. The task was not light and the manner of accomplishing it varied according to circumstances. Thus, while the discovery of a tenanted nest was considered final and conclusive evidence of residence, the exact location of every nest was deemed impossible without unlimited time and energy. The many little traits, so well known to the oologist, indicating the nearby habitations; repeated horizons; the corroborative evidence in the shape of the empty nests exposed by the falling leaves; all figured to a greater or lesser extent in the final count, with a constant leaning toward conservatism. Much time was consumed in amassing the necessary data, especially during the last two years. The enumeration was

timed so as to take the various species in the midst of their breeding season. Dividing and simplifying the labor wherever practicable, I still found the work very exacting and not to be again attempted without serious thought.

In blocking out a tract one square mile in extent, I chose a piece of land believed to be in no way inferior or superior in point of attractiveness to the surrounding country. It is diversified enough to contain hill, ravine, swamp, creek, wood, thicket, clearing, meadow, cultivated field, orchard, lawn, railroad, street, and a fair representation of the fauna and flora at large. It is moreover, accessible to my home, and land over which I am free to tramp. Tracings were made from an excellent township and property map, and exact boundaries established. It is an irregular square, not quite the same ground as that described in my Warbler Census (*Osprey, Vol. II, p. 48.*), extending more to the north and west, consequently less to the south and east.

The southern line runs a few rods beyond Paoli road and continues through the middle of the village along Berwyn avenue. To the east, it begins at a point on the Pennsylvania railroad just below the Philadelphia and Lancaster turnpike bridge and runs north parallel with Warren avenue to the old Lancaster road, thence along the hillside just east of and parallel with the most direct road to Valley Forge, locally known as "contention lane." On the north it extends into the Great Chester Valley, being bound by the State and Howelton roads and at two points slightly beyond them. The western boundary averages a few rods beyond the Mahaffey road. The southeast and southwest corners are clipped, and a great indentation made in the northern line just west of the centre; otherwise it is as previously stated, a rough square.

Two railroads, one of four and the other of two tracks, run through it from east to west; and it contains a population of six hundred and twenty-five souls. About one-tenth of the territory lies in Easttown township and the remainder in Tredyfrin township, extreme eastern part of Chester county, twelve miles from West Chester and seventeen miles from Philadelphia city hall. Approximate latitude, 40 degrees. Approximate

mate longitude, 1 1-2 degrees east of Washington. Altitude at Berwyn railroad station 495, to about 540 at hill crest, and about 225 feet above tide at northeastern corner in the valley. I am indebted to the United States weather bureau for the mean temperature, 68.68 degrees Fahrenheit and humidity 67, of Philadelphia for the past three years from April to August inclusive, which about covers the breeding season. It averages a little cooler and dryer at Berwyn.

South Valley hill, of which this block is but a small section is the edge of a low table land (500 to 600 feet) is composed of mica slate, doubtless of sedimentary origin and very ancient.

This ridge slopes into the valley on the north, and on the south forms but a part of the undulations to the Delaware valley; as a whole however, unbroken for many miles and constitutes the water shed between the Schuylkill and Delaware rivers. Within the stated area, on the south side four brooklets have their source, unite into the Darby creek a mile or so below, and flow into the Delaware below Philadelphia. On the north, less than a quarter of a mile from springs of the above, rise two branchlets of Trout run, which sparkling and glancing in the sunlight obliquely across the green valley, mingles its waters with that of the Schuylkill below Port Kennedy. At the extreme northern boundary a tiny stream has its beginning, trickling down through many a shaded dell to join the East Valley creek which in turn empties into the river at Valley Forge.

The northbound streamlets are invariably flanked by the steep ravine slopes, which in turn are cleft and seamed with lesser ravines and gullies. Owing to an upheaval of the slaty strata, the eastern side is always much more precipitous, often with the rocks exposed, while the opposite side is covered with earth.

The Great Chester, or Downingtown Limestone valley, as it is designated geologically, is a narrow basin averaging two and a half miles wide, fifty-eight miles long and from two hundred to four hundred feet deep. The limestone overlies the white or Potsdam sandstone, which represents the earliest stratified rock in the country and lies near the surface on the

North Valley hill. I cannot do better than quote Prof. H. D. Rogers in his description of this valley in prospective: "Externally the tract with the highly cultivated farms, numerous thriving villages, factories, furnaces and mills presents a scene unsurpassed in the United States. The soft, picturesque beauty of the plain or bed of the valley is much enhanced by the remnants of the natural forests. It lies between these like the deck of a slender boat between its sloping sides. The surface is in almost every part irrigated with running brooks of pure, transparent water. The enclosing hills, or two edges of the general upland between which this valley lies, at an average depression of nearly three hundred feet, are superbly carved into numerous wooded ravines and narrow dells. From any point on the southern table land near the head of one of its ravines, the view is truly enchanting, broad slopes of foliage and a shady dell fill the foreground, wheat fields and pastures, orchards and snug, tidy farm houses, many of them of the dignity of country mansions, occupy for miles the middle distance, and the extended back-ground is a rich succession of fading hills and far stretching mountains." As Prof. Rogers has stated, this ridge as also the opposite hill range, is covered with a growth of deciduous timber which though but a narrow strip at some places, is almost unbroken throughout its length of many miles.

Once more confining my statements to the local square, we have about 170 acres of timber from sproutland to trees averaging perhaps sixty years old. Ninety-five feet would probably top the highest chestnuts which predominate, with a varying admixture of oak *Quercus tinctoria*, *Q. alba*, *Q. prinus*, hickory *Carya tomentosa*, tulip poplar, *Liriodendron tulipifera*, beech, red maple, and a sprinkling about the borders principally of red cedar, sycamore, wild red cherry, sassafras, gum, black walnut, birch *Betula lenta*, mulberry, slippery elm, hackberry *Celtis occidentalis*, swamp willow, laurel *Kalmia latiflora*, flowering dogwood and spicewood. A few of the commoner woodland and swamp plants are the windflower, mandrake, bloodroot, shepherds' purse, pepper grass, yellow violet, jewel weed, poison ivy, wild sarsaparilla, bush honeysuckle, part-

ridge berry, wild astor, wild huckleberry, trailing arbutus, spotted prince's pine, pennyroyal, boneset, skunk cabbage, Indian pipe, poke, Indian turnip, calamus, showy orchid, winter, summer and maiden hair ferns. Patches of hair and coral moss are frequent, and tangles of greenbriers, chicken and fox grape vines, also sweet and poison shumac, form safe retreats for the smaller birds.

Almost three-fourths of the tract is cleared. In addition to many of the trees already named, the following are found singly or in clusters: persimmon, catalpa, yellow locust, tree of paradise, weeping willow, Lombardy poplar, silver maple, white ash, pines *Pinus strobus* and *rigidus*, spruce and cherry. Of cultivated fruits about eight or ten acres of apple orchards, and many pear, cherry, peach, and smaller fruits; the pear being by far the most flourishing. Over a mile of hedges, commonly Osage orange, Norway spruce, *Arbor vitæ* and privet.

Indian corn, wheat, rye, oats, timothy, red and white clover, and occasionally a little buckwheat, Hungarian grass and tobacco are grown. Of the many vegetables the white potato, tomato, cabbage, onion, string bean, pea, radish, beet, okra, celery, egg plant and pepper, flourish best. A goodly portion being in well kept lawns, the various hardy plants and shrubs are too numerous to mention. The climbing vines such as woodbine, bitter sweet, Virginia creeper, trumpet, etc., are commonly trained about fences, arbors and buildings.

Not many years ago there were little cleared ground that was neglected or uncultivated, but since the advent of the land speculator, in the name of suburban improvement, many small farms aggregating about 130 acres have become idle, unproductive save for pasture, and are slowly drifting back to nature. The grasses, dandelion, buttercup, oxeye daisy, violet, yarrow, and rag weed are being superceded by the goldenrod, wild carrot, milkweed, Spanish needle, shepherd's purse, Canada thistle, wild rose, burdock, poison ivy, red cedar bush, wild strawberry, dewberry, raspberry, and blackberry, all of which must yield in turn to the sassafras, dogwood, wild cherry, shumac, wild grape vine, greenbrier, etc., unless reclaimed in the meantime.

Of the wild animals, native and introduced, the red fox, *Vulpes fulvus*, weasel *Putorius erminea*, skunk *Mephitis mephitis*, brown bat *Vespertilia subulatus*, mole *Scalops aquaticus*, white-footed mouse *Hesperomys leucopus*, meadow mouse *Arvicola riparius*, house mouse *Mus musculus*, house rat *Mus decumanus*, grey squirrel *Sciurus carolinensis*, flying squirrel *Sciuropterus volucella*, red squirrel *Sciurus hudsonius*, ground squirrel *Tamias striatus*, grey swamp rabbit *Lepus sylvaticus*, and opossum *Didelphia virginianus*, are more or less common; and the mink *Lutorius vison*, raccoon *Procyon lotor*, and muskrat *Fiber zibethicus*, are occasional, and more common a short distance beyond the boundary. The ground hog *Arctomys monax*, so common fifteen years ago, is now well nigh exterminated in the immediate vicinity.

Reptilia is poorly represented in the number of individuals except in the box tortoise, gartersnake and blacksnake. An occasional river tortoise, red terrapin, mud turtle, watersnake, house adder and viper may be found. We have two species of the bull frog, tree frog, toad; and a few fish: striped dace, red-fin, roach and brook trout. Crayfish are common, and a species of land snail plentiful in the woods. Slugs are not uncommon in gardens. Among the woodland spiders, the geometrical is the most prominent.

It would be impossible to give more than a few of the more injurious or most noticeable of the many insects. The black and red ants, sulphur butterfly, tent caterpillar, corn-ear worm, cut worm, tobacco worm, green fruit worms, squash vine borer, apple-tree borer, may beetle, Colorado potato beetle, stink-bug, common and striped squash bugs, click beetle, fruit tree bark borer, plum curculio, dog locust, leather-winged locust, red-legged grasshopper, katydid, black cricket, etc.

1. **American Woodcock** *Philohela minor*. — Formerly common both as a transient and a breeder, it is now so uncommon as to be scarcely worth hunting. Not more than a pair can be found here in nesting time, and there are few migrants passing.

2. **Killdeer** *Ægialitis vocifera*. Like the above, this is a decreasing species. Now found only in well watered meadows, in this neighborhood. One pair annually nest near the foot of the hill, in the valley, and just inside my territory. 2
3. **Bobwhite** *Colinus virginianus*. The last covey was exterminated within recent years. A stray cock may be heard nearly every summer, but apparently always mateless. Kansas birds are now being introduced in the valley and are taking to the hills. I
4. **Mourning Dove** *Zenaidura macroura*. I have not found the Turtle Dove very common in this vicinity. Three pairs noted this year and two pairs in former years. 4
5. **Cooper's Hawk** *Accipiter cooperi*. The Privateer is pretty evenly distributed throughout this section. A pirate always, it takes possession of a Crow's nest well up in hardwood timber. One, sometimes two pairs, nest in the block. 2
6. **Broad-winged Hawk** *Buteo latissimus*. A regular breeder in chosen territory. This tract has seldom been without a pair. Incubation in one instance twenty-four days, and young left nest in about forty-one days. 2
7. **Sparrow Hawk** *Falco sparverius*. For many years a pair occupied the hollow limb of a revolutionary "watch tree," overlooking the valley; an immense chestnut nearly eight feet in diameter at the base; fire and a great wind storm leveled this giant to the earth one year ago, however, and I have not yet yet located the present nesting site of the birds. 2
8. **Screech Owl** *Megascops asio*. In this section the red phase predominates. Four pairs may be safely given. 8
9. **Yellow-billed Cuckoo** *Coccyzus americanus*. This and its relative, the Black-bill, destroy a great many of the hairy caterpillar pests. From three to six pairs are annually present. 8

- 10 **Black-billed Cuckoo** *Coccyzus erythrophthalmus*. I have found this species somewhat erratic. Sometimes equaling the above, but within the past few years I am sure of only one pair. 2
11. **Downy Woodpecker** *Dryobates pubescens medianus*. Fairly constant. The flying squirrel frequently uses the deserted nesting cavity of this little bird. Five pairs seem to be the average number nesting. 10
12. **Red-headed Woodpecker** *Melanerpes erythrocephalus*. This is more of a lover of old orchard and heavy grove timber than of our chestnut belt. It is, however, more frequent than ten years ago. One pair may be found in this tract. 2
- 13 **Flicker** *Colaptes auratus*. From three to six pairs breed annually. Most abundant in the more open country to the south of us. 8
14. **Nighthawk** *Chordeiles virginianus*. Considering it locally, it is perhaps nearly as rare as the Whip-poorwill. I record one pair. 2
15. **Chimney Swift** *Chaetura pelagica*. I know of no instance where more than a single pair occupy the same flue for nesting purposes. For the past three years the local contingent numbering as high as fifty or sixty individuals have roosted in one of our chimneys previous to migrating. We have at least sixteen pairs of breeding birds. 32
16. **Ruby-throated Hummingbird** *Trochilus colubris*. I am not sure that as many as four or five pairs do not breed within the given area, but I have positive proof of only two pairs in any one year. 4
17. **Kingbird** *Tyrannus tyrannus*. Present every season but extremely variable. Five pairs found in one year but the normal number is less than half. 4
18. **Crested Flycatcher** *Myiarchus crinitus*. Too noisy to be overlooked, yet secretive enough in domestic affairs. Averages eight pairs. 16

19. **Phoebe** *Sayornis phoebe*. One nest with fresh lining occasionally does triple duty as crib when the bird is not seriously molested. Two pairs occupy separate deserted springhouses, one pair in stone wall of dismantled house, and another pair occupy a stone culvert under railroad; and return yearly to the same places. 8
20. **Wood Pewee** *Contopus virens*. From three to six pairs, more often the latter. 10
21. **Green-crested Flycatcher** *Empidonax virens*. Regular in its haunts along the thicket-bound streams. Five pairs. 10
22. **Blue Jay** *Cyanocitta cristata*. The three to five pairs not easily passed unnoticed. 8
23. **American Crow** *Corvus americanus*. From four to six pairs annually nest, in late years; probably a greater number in former times. 10
24. **Fish Crow** *Corvus ossifragus*. A late addition to our local avian-fauna. First observed in 1898, and one or two pairs have been found in this tract ever since, nesting in the top of the tallest trees, usually chestnuts. Now common in the neighborhood. 2
25. **Cowbird** *Molothrus ater*. One male and two females have commonly been met with, though doubtless others occasionally invade the block. 3
26. **Meadow Lark** *Sturnella magna*. Seldom absent at any time of the year, though more common on either side of the ridge. During deep snows it will sometimes approach houses and feed upon the berries of the bitter-sweet and woodbine. Four pairs in grass fields. 8
27. **Orchard Oriole** *Icterus spurius*. Averages four pairs in late years. 8
28. **Baltimore Oriole** *Icterus galbula*. The Golden Oriole prefers the drooping branches of the weeping willow as a nesting place and regularly returns to its old haunts. Five to six pairs are found yearly. 10

29. **Purple Grackle** *Quiscalus quiscula*. For many years a small colony have occupied the evergreen trees about Wynburn Inn. In the spring of 1898 only eight pairs were present, and in the past three years seldom exceeded twenty birds. An outlying pair occupy an apple or sycamore tree, half a mile distant. 22
30. **American Goldfinch** *Astragalinus tristis*. Roving until nearly all other birds have done with domestic affairs, it is very hard to enumerate. Old and young feed almost exclusively for a time on the ripening sunflower seeds grown for the domestic fowls. Six pairs would be well under the limit. 12
31. **Vesper Sparrow** *Pooecetes gramineus*. The Grass Finch is less common than formerly. About eight pairs present. 16
32. **Chipping Sparrow** *Spizella socialis*. In the early '80's I found it nesting most numerous in cedar bushes, now it is most frequent about vine-clad piazzas, hedges, fruit and ornamental trees and bushes. The Chippy has suffered much from the small boy and cat. Not quite so abundant as formerly, now averaging about thirty-nine pairs. 78
33. **Field Sparrow** *Spizella pusilla*. Only a very careful enumeration convinced me that this species outnumbered the preceding. It nests more often above than on the ground. Fifty-nine pairs on an average in last three years. 118
34. **Song Sparrow** *Melospiza melodia*. Much like the Field Sparrow in nesting habits, but more domestic. Very abundant as a transient. 44
35. **Towhee** *Pipilo erythrophthalmus*. I should judge, that the fifteen pairs now found in this area, is but half the number nesting up to and including 1898. 30
36. **Cardinal** *Cardinalis cardinalis*. Haunting the green-brier thickets. 1898 to 1900—three pairs; 1900—two pairs. 4

37. **Indigo Bunting** *Passerina cyanea*. Local station substantially the same as the Blue-winged Warbler. Breeding season frequently extends well into July. Eleven pairs. 22
38. **Scarlet Tanager** *Piranga erythromelas*. Inhabits wood borders, usually near roads or paths. One pair built in my home orchard in 1901. There appears to have been a gradual and substantial increase up to the end of the century. The maximum number for 1900 and 1901 is twenty birds. Taking into consideration the conspicuous plumage of the males, I still believe that they actually exceed the females in number. 20
39. **Purple Martin** *Progne subis*. Two or three pairs located in a box erected by Mr. Washington Harris, in 1889. Seven years later I succeeded in attracting a young pair to quarters prepared for them, and have had a small colony, not exceeding three pairs, ever since. Previous to the above instances, the Martin has been a stranger to the tract, though breeding a few miles away. Much commoner in the Southern portion of the county. 10
40. **Barn Swallow** *Chelidon erythrogaster*. Of the four barns formerly sheltering this bird, one has been demolished, another burned down, and the third closed against it; the fourth is situated in the valley and accommodates about ten pairs. 20
41. **Cedar Waxwing** *Ampelis cedrorum*, Four pairs nesting in shade and fruit trees. 8
42. **Red-eyed Vireo** *Vireo olivaceus*. This tireless singer chiefly inhabits the woods and thickets. A few pairs may always be found nesting in the shade trees about dwellings. The nest is not hard to find after the leaves have fallen and their number justifies my approximation of fifty-five pairs. 110
43. **Warbling Vireo** *Vireo gilvus*. I have noted but eight pairs in any one year hereabout, two pairs in North Berwyn; all found about large maples near dwellings. 4

44. **Yellow-throated Vireo** *Vireo flavifrons*. I have twice discovered the nest and three eggs of a single pair which yearly haunt the larger swampy thicket. 2
45. **White-eyed Vireo** *Vireo noveboracensis*. A pair in either of the swampy thickets. Perhaps not so well represented as it should be. 4
46. **Black and White Warbler** *Mniotilta varia*. So conspicuous as a transient, it is wonderful how invisible it becomes as a housekeeper. It inhabits the rocky hillsides where the trailing arbutus and laurel grow under the trees, and extends down to the damp thickets of the bottomlands. When the young are well along, it is familiar enough. My enumerations were made principally from the singing males, with later family groups as corroborative evidence. Eight to twelve pairs. 20
47. **Worm-eating Warbler** *Helminthorus vermivorus*. Perhaps as common here as anywhere else in the country as a summer resident. It loves the steep wooded hillsides and ravine slopes above the running brooklets, building its nest under a drift of withered leaves which have lodged against a laurel sprout, wild huckberry spray, sapling or a dead stick; though it is only less common on the gentle slopes where conditions are suitable. I know of no other ground-nesting Warbler that gives greater delight to the eye than this trim, slender and graceful little member as it dodges nimbly above and about the fallen leaves, or sits so bravely and defiantly in its snug cave-like dwelling, calmly eyeing the intruder; doubtless trusting to the last minute in the mimicry of self to the surroundings. I have examined over fifty nests and found them all lined with the flower stems of the hair moss, *Polytrichum*, which is a distinctive trait throughout its breeding range, I believe. For a Warbler, it is a remarkably persistent breeder, and will return year after year to near the same spot, if not too often

- disturbed. The nest is often built in three days. The period of incubation in one instance was thirteen days, and the young left the nest on the morning of the tenth day. From fifteen to seventeen pairs noted, 32
48. **Blue-winged Warbler** *Helminthophila pinus*. A common inhabitant of the rather open swampy thickets, upland clearings, neglected pastures and fence rows, building its nest midst the tangle of young saplings, wild grape vines, blackberry and raspberry bushes, in a clump of grass, goldenrod or brier shoots. When the female is sitting close, the male makes little excursions in all directions, singing his locust song. From ten to thirteen pairs were observed. 22
49. **Yellow Warbler** *Dendroica æstiva*. While said to be abundant in some parts of the county, it is here comparatively rare. In the early summer of 1899, I observed a male taking a bath in a spring, and have since found a pair frequenting an upland clearing but they could not be traced to their nest at any time. I think that this section would scarcely yield a single pair to the square mile. 2
50. **Ovenbird** *Seiurus aurocapillus*. From early May until July the loud asserting chant of this Warbler may be heard everywhere until the very woods resounds. It would be folly to attempt anything more than an approximate figure of the number of individuals with less than practically unlimited time and energy. My estimates were obtained by repeatedly visiting every tract of woods at different times of the day, and taking the average as the probable number of breeding birds. The total of forty-one pairs I regard as conservative. 82
51. **Kentucky Warbler** *Geothlypis formosa*. It would seem almost incredible that so keen an ornithologist as Alexander Wilson should have overlooked this bird in Pennsylvania if it had not been uncommon or local at that time. Discovering it in Kentucky and subse-

quently observing it in Tennessee and Louisiana, we do not know that he ever met with it east of the Alleghanies. In 1832 Nuttall quotes Wilson, and adds "The species is scarcely known to the east of North Carolina." Michener's List of Land Birds of Chester County, Penna. (*Agricultural Ornithology*, 1863) "A Southern species and rather scarce," Krider (*Forty Years Field Notes*, 1878) "Considered rare, I have found it in swampy woods, New Jersey, and mountains of Pennsylvania." From 1875 to 1878 we hear of it breeding locally, in New York, New Jersey, Pennsylvania and Ohio. Coues, (1878) "Eastern Province of the United States, especially in the Valley of the Mississippi, north to Connecticut Valley, west to Kansas and the Indian Territory." Maynard (1879) "Quite rare in the Eastern of the Middle States and does not occur in New England at all. The great stronghold appears to be in the West, along the Mississippi river, I have not met with it." During the early '80's the advance was wonderfully rapid; indeed Dr. Coues had confidently predicted its occurrence in New England sooner or later, long ago; while Chamberlain alone appears to have had no suspicion of it, as he says (1891) "It is most abundant along the Mississippi Valley and has been seen but rarely east of the Alleghanies." Locally, Rhoades mentions it breeding in Chester county in 1878 (*Bulletin Nuttall Ornithological Club*, Vol. IV, p. 234) and regarded it as one of the commonest representatives of its family. Eight years later, Jackson reports it a "frequent summer resident, in some localities may almost be said to be common" (*Ornithologist and Oologist*, Vol. XII, p. 43), and in 1889, Norris found it breeding abundantly (*Ibid*, Vol. XIV, p. 104). In this section the increase was enormous up to 1897, when the high water mark was reached and the Kentucky appeared to be about seventh in point of numbers, perhaps more numerous here than any other

part of its habitat. It actually overflowed its accustomed haunts of luxuriant undergrowth, the bird associated with the spicewood, swamp cabbage, summer fern, mandrake and wild sarsaparilla, encroached upon the domains of the Ovenbird and the Blue-winged Warbler. The following year it fell to about one-half the preceding high total and yet ranked next to the Ovenbird in the Warbler family. It has since held its own, I can give no reason for the decrease. It is a matter of congratulation that this and other insect destroying species have so greatly multiplied and extended their ranges as to fill in a large measure the gaps made by the destruction of other beneficial species. I record 20, 24 and 21 pairs in the last three years.

42

52. **Maryland Yellowthroat** *Geothlypis trichas*. I have been accustomed to regard this bird as a swamp dweller exclusively until recent years, when I have found it skirting the second growth sprouts and attendant dense vegetation some distance from water. Two types of nests are known to me, the first a frail, thin, grass-built structure; and the other, high and well built of weed stems, grape-vine bark and dead leaves, lined with fine grass stems or strawberry runners, the cornicopia type. Six to nine pairs.

14

53. **Yellow-breasted Chat** *Icteria virens*. Apparently one place is as good as another to the Chat, and it may usually be found more or less common according to the available briars, brambles and cedar brushes; apart from this it is occasionally somewhat uncertain in numbers. The average for the last three years is fourteen pairs.

28

54. **Catbird** *Galeoscoptes carolinensis*. Found anywhere except in the deep woods. An average of thirty-two pairs.

64

55. **Brown Thrasher** *Harporhynchus rufus*. As a small boy, I remember this bird as a familiar roadside frequenter; then for a number of years it sank to a very

low ebb, I occasionally noted it as tolerably common up to 1893, but not again until 1900, if five pairs in one square mile can be considered so. It builds in hedges, greenbriers and thorn bushes. Its rich song, beautiful form and inoffensive ways should make it an object of special protection.

10

56. **House Wren**, *Troglodytes aedon*. Quite a number of people have complained that they have not seen a Wren for years, while as a matter of fact they have been common enough the past few years at least, though often compelled to resort to the cavities and odd corners of outbuildings for breeding purposes. I have had no trouble to keep a pair about the garden by merely erecting a small box with an inch augur hole for entrance and narrow slits under the eaves to give it ventilation. The English Sparrow cannot get at it. I have found from ten to twelve pairs the last three years.

22

57. **White-breasted Nuthatch**, *Sitta carolinensis*. This square contains a poor representation in the breeding season, common at all other seasons however. One pair.

2

58. **Carolina Chickadee**, *Parus carolinensis*. Present in an old orchard. Common only in the fall and spring. I have never found its nest.

2

59. **Wood Thrush**, *Hylochichla mustelina*. Few birds are more often robbed of their eggs by the boy collector than this species. It is, I think, a little less numerous than formerly. In this neighborhood it is a bird of the woods and thickets exclusively; but like so many of our wood birds, it builds its nest not far from a road or opening. Twenty to twenty-one pairs.

40

60. **American Robin**, *Murula migratoria*. I once counted forty-five nests placed in shade trees on either side of an avenue in the short distance of two squares. Probably not more than two or three nests are built by a single pair in high or protected situations, while as

high as five nests are often required in exposed places.
Thirty-seven pairs.

74

61. **Bluebird**, *Sialia sialis*. Abundant up to the fierce blizzard of February, 1895, when it became scarce for the two seasons following. It is again becoming common. The past two years I counted four pairs nesting.

8

62. **European House Sparrow**, *Passer domesticus*. This bird should be classed with the rats, mice and other vermin. I have repeatedly found its great rubbish pile of a nest in situations impossible for any of our native birds. In defence of the Martins, I have shot more than fifty would-be tenants; and have destroyed nest, eggs and young whenever possible to get at them, yet it is our most abundant bird. Approximately we have one hundred and six pairs, and under present conditions it has doubtless reached the limit of abundance.

212

We have a total of 1388 individuals, representing 62 species, which may be divided in the main as follows:

| | | |
|----------------|-------------|-------------------|
| Insectivorous, | 48 species. | 1091 individuals. |
| Granivorous, | 6 “ | 255 “ |
| Frugivorous, | 1 “ | 8 “ |
| Carnivorous, | 4 “ | 14 “ |
| Omnivorous, | 3 “ | 20 “ |

Only two species are positively injurious, the Cooper's Hawk and English Sparrow; and two more are on the doubtful list, the Blue Jay and Cedar Waxwing.

The following species were formerly present in the tract, but are now absent for one reason or another.

1. **Ruffed Grouse**, *Bonasa umbellus*. The last bird inhabiting this tract, was shot in November, 1889, and is now in my collection. Formerly common, but I doubt whether the length and breadth of the South Valley hills could now yield a single specimen. A few are yet to be found on the North Valley hills.

2. **Sharp-shinned Hawk**, *Accipiter velox*. Dr. W. E. Rotzell found a pair nesting in a small cedar grove in 1889. It has not occurred as a breeder since that time. It is rather uncommon as a summer resident in the county, I believe.
3. **Belted King-fisher**, *Ceryle alcyon*. I examined an occupied burrow in an iron ore pit, in 1894, and the birds deserted the spot. It is found sparingly along all streams of fair size.
4. **Whippoorwill**, *Antrostomus vociferus*. Not present as a breeder since 1887. Rather rare in this section for a number of years.
5. **Red-winged Blackbird**, *Agelaius phoeniceus*. A few pairs nested in the larger swamp a number of years ago when it was more open. Found commonly in small colonies on either side of the ridge, in suitable places.
6. **Carolina Wren**, *Thryothorus ludivicianus*. One or two present in 1898, and I shot a moulting female early in September. Rather rare in the neighborhood.

Present in the immediate vicinity but nesting without the stated area, are several species as given below.

1. **Great Blue Heron**, *Ardea herodias*. A single bird, usually an immature, may frequently be found haunting the head waters of the Darby creek.
2. **Green Heron**, *Ardea virescens*. A pair in Devon swamp. Rather uncommon in this locality.
3. **Black-crowned Night Heron**, *Nycticorax nycticorax naevius*. Large colony in the valley, within a few miles.
4. **Bartramian Sandpiper**, *Bartramia longicauda*. Present on either side of the ridge but rather rare.
5. **Spotted Sandpiper**, *Actitis macularia*. Found just without the tract. Not uncommon.

6. **Turkey Vulture**, *Cathartes aura*. Often found within my boundaries but does not nest nearer than Paoli and Valley Forge.
7. **Red-tailed Hawk**, *Buteo borealis*. It is a rather curious fact that I have never found this large Hawk breeding on the Valley hills. It is common in the grove timber to the south of us.
8. **American Barn Owl**, *Strix pratincola*. Found in the large timber near the head of Darby creek, a mile from Berwyn. Rather rare.
9. **American Long-eared Owl**, *Asio wilsonianus*. Has been found recently nesting near Paoli and at Valley Forge by Dr. W. E. Hughes, Rare.
10. **Great-horned Owl**, *Bubo virginianus*. The same remarks might be made in regard to this species as to the Red-tailed Hawk. It is rather uncommon.
11. **Hairy Woodpecker**, *Dryobates villosus*. I have found it but once within this tract. Rare in this section.
12. **Grasshopper Sparrow**, *Ammodramus savannarum passerinus*. Found nesting at Daylesford. Not uncommon.
13. **Rough-winged Swallow**, *Stelgidopteryx serripennis*. Present in the valley. Common.
14. **Louisiana Water Thrush**, *Seiurus motacilla*. A pair discovered in 1899, half a mile beyond the limits of the block.

Thus eighty-two of the ninety-odd species breeding in the county are accounted for. The most notable of the missing ones are the Cliff Swallow, and Tufted Titmouse.

Excluding man and certain domestic animals, the greatest destroyers of our feathered friend, appear to be the fox, weasel, red squirrel and black snake; and probably the most critical period of its existence is immediately after it has left the home nest.

We would be better prepared to realize the enormous number of birds in a given area, if we would stop to consider that 1280 individuals to the square mile would mean but a single pair to the acre ; certainly a very small force to battle against the destructive rodents, innumerable noxious weeds, and myriad insect life.